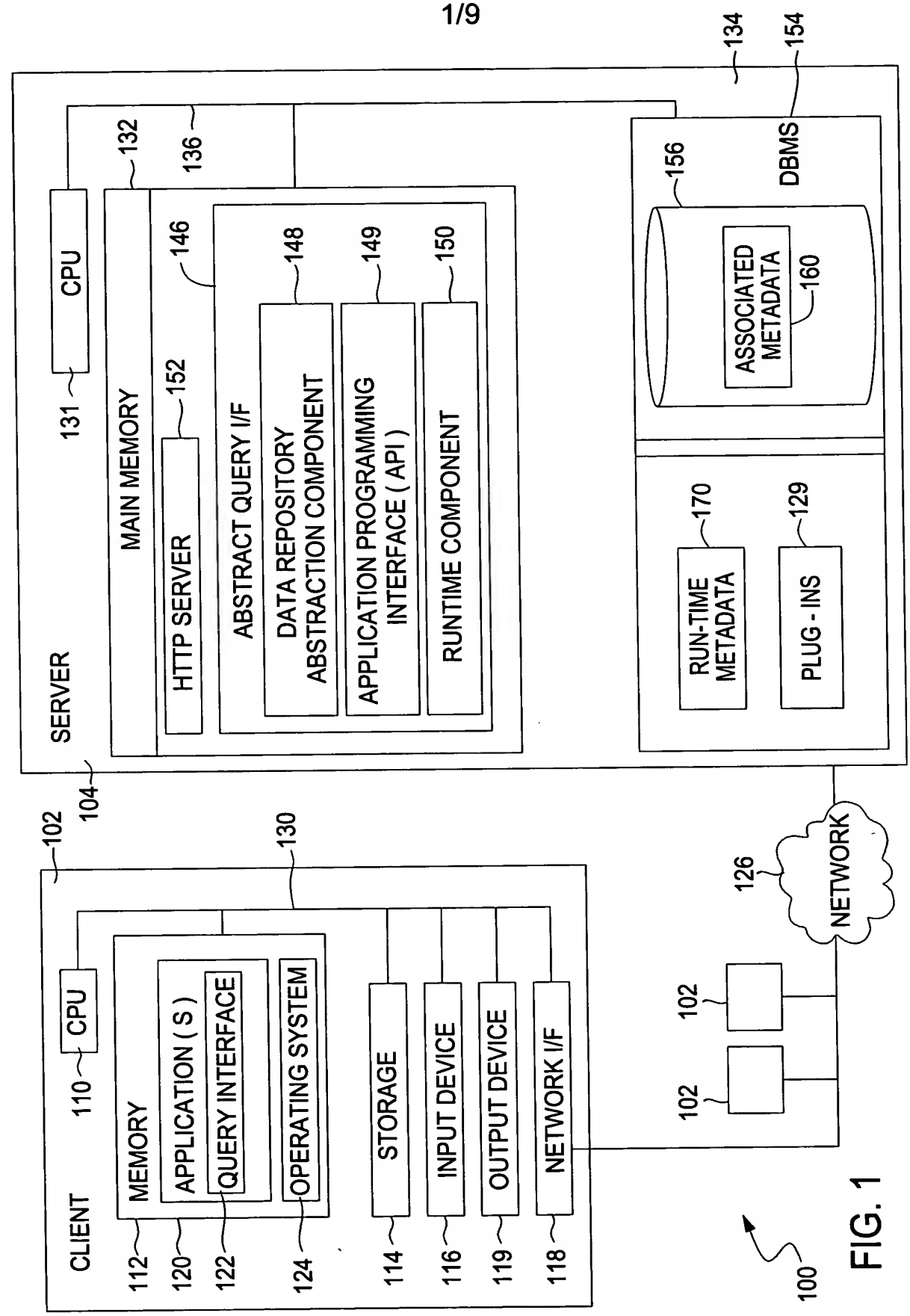
SERVER
104
MAIN MEMORY
132
CPU
131
136
HTTP SERVER
152
ABSTRACT QUERY I/F
146
DATA REPOSITORY ABSTRACTION COMPONENT
148
APPLICATION PROGRAMMING INTERFACE ( API )
149
RUNTIME COMPONENT
150
134
DBMS
154
156
ASSOCIATED METADATA
160
RUN-TIME METADATA
170
PLUG - INS
129
NETWORK
126
CLIENT
102
130
CPU
110
MEMORY
112
APPLICATION ( S )
120
QUERY INTERFACE
122
OPERATING SYSTEM
124
STORAGE
114
INPUT DEVICE
116
OUTPUT DEVICE
119
NETWORK I/F
118
102
102
100

FIG. 1

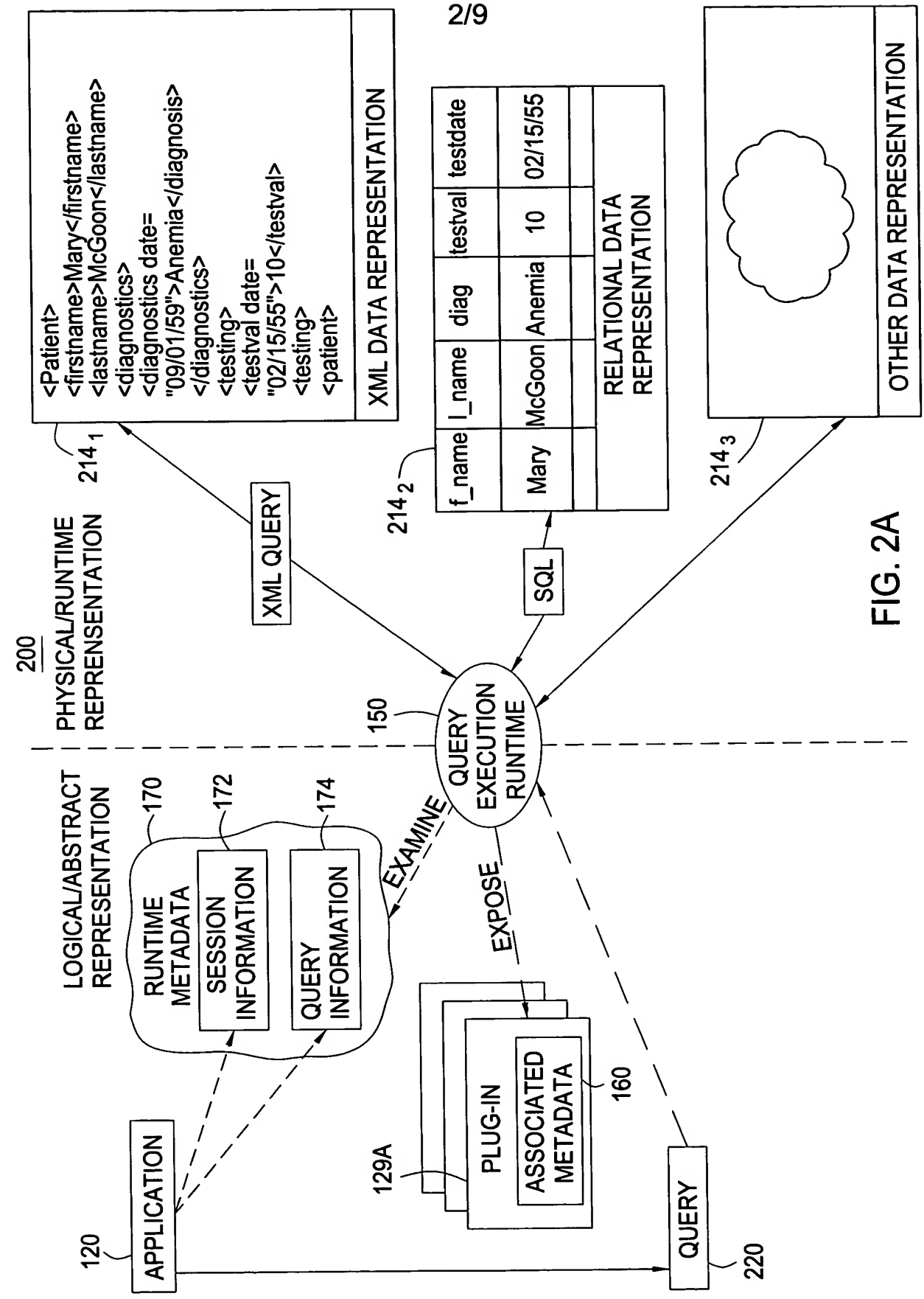
200
PHYSICAL/RUNTIME REPRENSENTATION
LOGICAL/ABSTRACT REPRESENTATION
<Patient>
<firstname>Mary</firstname>
<lastname>McGoon</lastname>
<diagnostics>
<diagnostics date= "09/01/59">Anemia</diagnosis>
</diagnostics>
<testing>
<testval date= "02/15/55">10</testval>
<testing>
<patient>
XML DATA REPRESENTATION
214 1
f_name
l_name
diag
testval
testdate
Mary
McGoon
Anemia
10
02/15/55
RELATIONAL DATA REPRESENTATION
214 2
OTHER DATA REPRESENTATION
214 3
XML QUERY
SQL
150
QUERY EXECUTION RUNTIME
EXAMINE
EXPOSE
170
RUNTIME METADATA
172
SESSION INFORMATION
174
QUERY INFORMATION
129A
PLUG-IN
ASSOCIATED METADATA
160
120
APPLICATION
QUERY
220

FIG. 2A

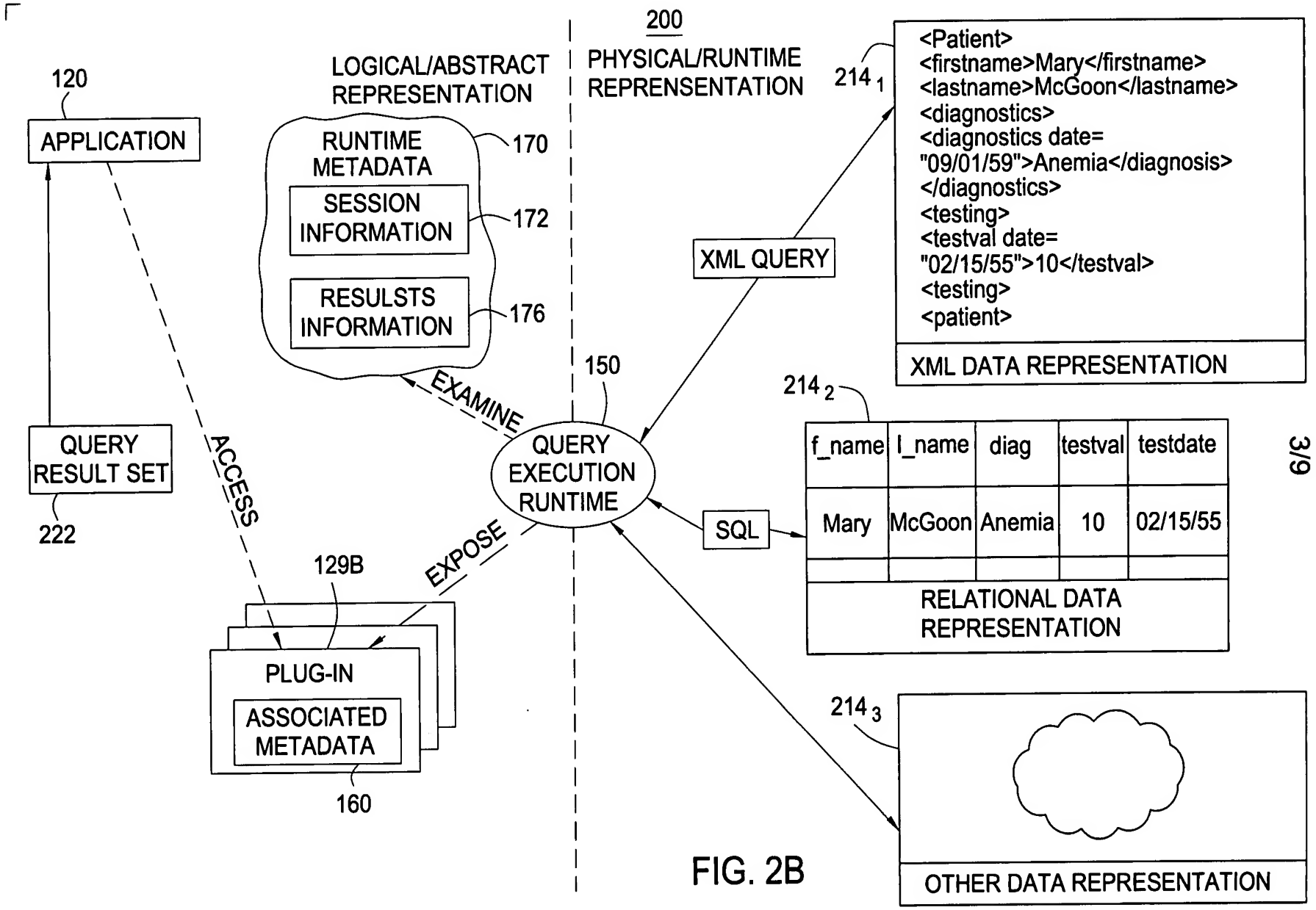
200
LOGICAL/ABSTRACT REPRESENTATION
PHYSICAL/RUNTIME REPRENSENTATION
120
APPLICATION
RUNTIME METADATA
170
SESSION INFORMATION
172
RESULSTS INFORMATION
176
EXAMINE
150
QUERY EXECUTION RUNTIME
ACCESS
QUERY RESULT SET
222
EXPOSE
129B
PLUG-IN
ASSOCIATED METADATA
160
XML QUERY
SQL
214 1
<Patient>
<firstname>Mary</firstname>
<lastname>McGoon</lastname>
<diagnostics>
<diagnostics date=
"09/01/59">Anemia</diagnosis>
</diagnostics>
<testing>
<testval date=
"02/15/55">10</testval>
<testing>
<patient>
XML DATA REPRESENTATION
214 2
f_name
l_name
diag
testval
testdate
Mary
McGoon
Anemia
10
02/15/55
RELATIONAL DATA REPRESENTATION
214 3
OTHER DATA REPRESENTATION

FIG. 2B

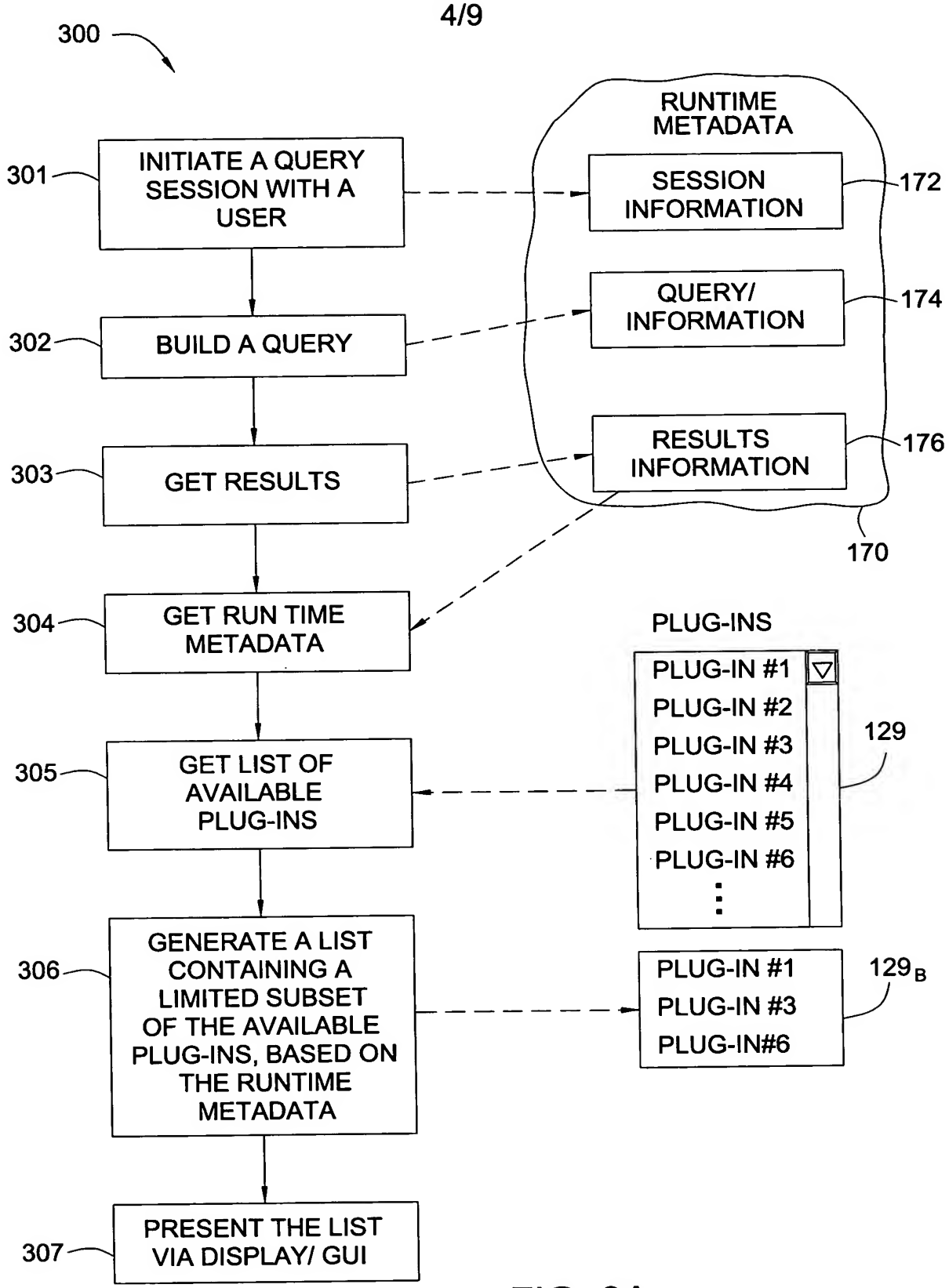
300
301
INITIATE A QUERY SESSION WITH A USER
302
BUILD A QUERY
303
GET RESULTS
304
GET RUN TIME METADATA
305
GET LIST OF AVAILABLE PLUG-INS
306
GENERATE A LIST CONTAINING A LIMITED SUBSET OF THE AVAILABLE PLUG-INS, BASED ON THE RUNTIME METADATA
307
PRESENT THE LIST VIA DISPLAY/ GUI
RUNTIME METADATA
SESSION INFORMATION
172
QUERY/ INFORMATION
174
RESULTS INFORMATION
176
170
PLUG-INS
PLUG-IN #1
PLUG-IN #2
PLUG-IN #3
PLUG-IN #4
PLUG-IN #5
PLUG-IN #6
129
PLUG-IN #1
PLUG-IN #3
PLUG-IN#6
129B

FIG. 3A

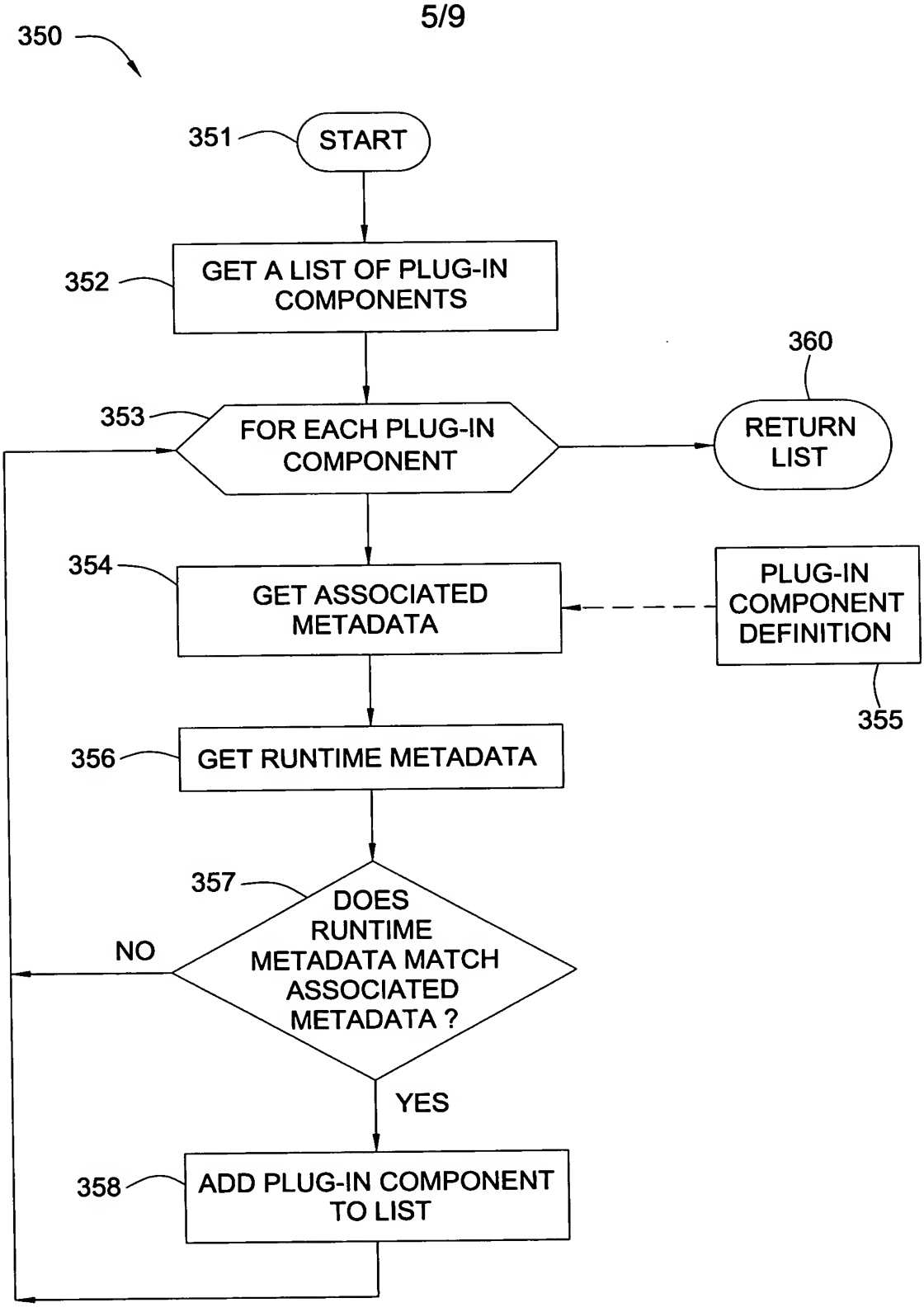
350
351
START
352
GET A LIST OF PLUG-IN COMPONENTS
353
FOR EACH PLUG-IN COMPONENT
360
RETURN LIST
354
GET ASSOCIATED METADATA
PLUG-IN COMPONENT DEFINITION
355
356
GET RUNTIME METADATA
357
DOES RUNTIME METADATA MATCH ASSOCIATED METADATA ?
NO
YES
358
ADD PLUG-IN COMPONENT TO LIST

FIG. 3B

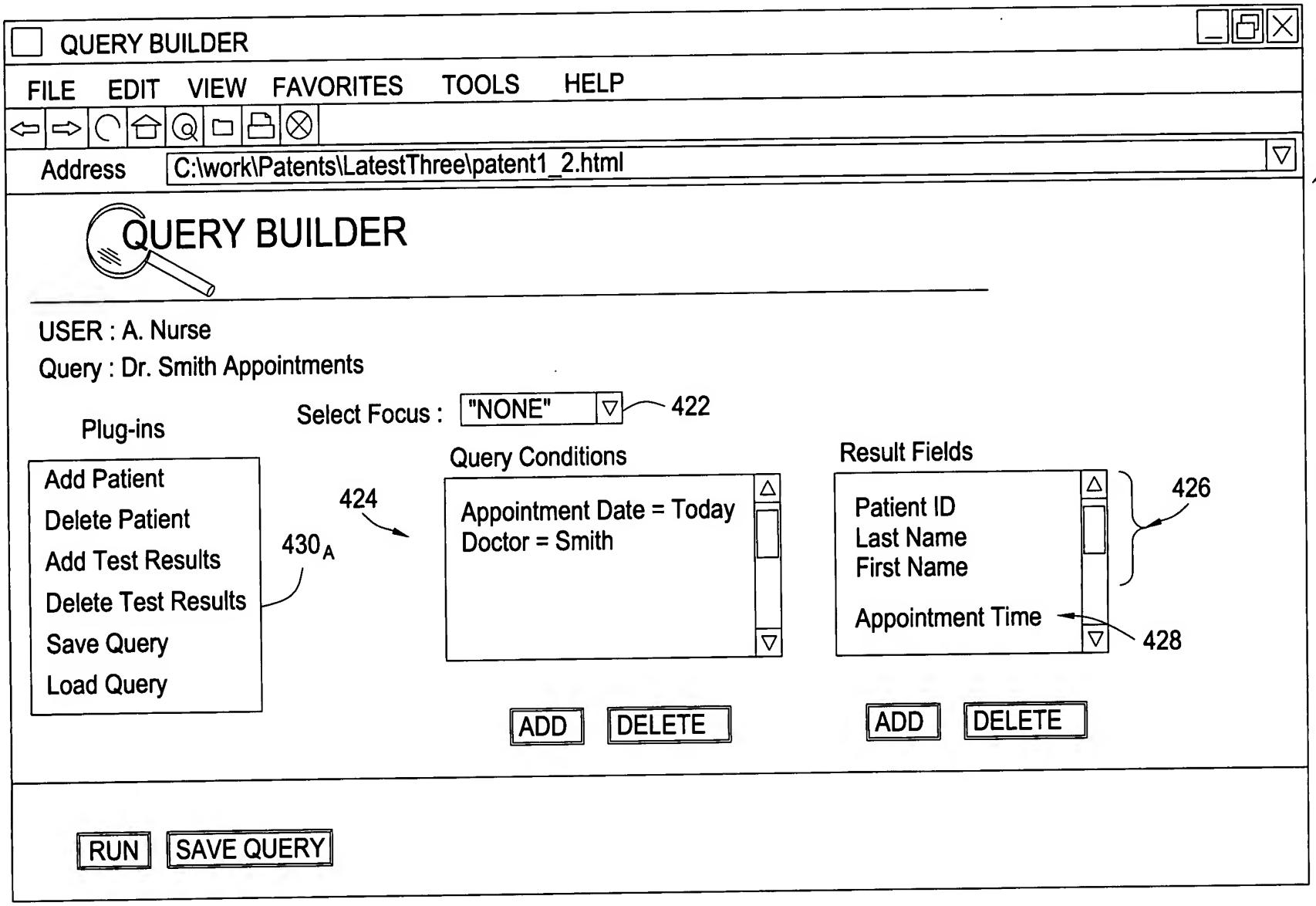
QUERY BUILDER
FILE EDIT VIEW FAVORITES TOOLS HELP
Address C:\work\Patents\LatestThree\patent1_2.html
420
QUERY BUILDER
USER : A. Nurse
Query : Dr. Smith Appointments
Select Focus : "NONE"
422
Plug-ins
Add Patient
Delete Patient
Add Test Results
Delete Test Results
Save Query
Load Query
430A
424
Query Conditions
Appointment Date = Today
Doctor = Smith
Result Fields
Patient ID
Last Name
First Name
Appointment Time
426
428
ADD
DELETE
ADD
DELETE
RUN
SAVE QUERY

FIG. 4A

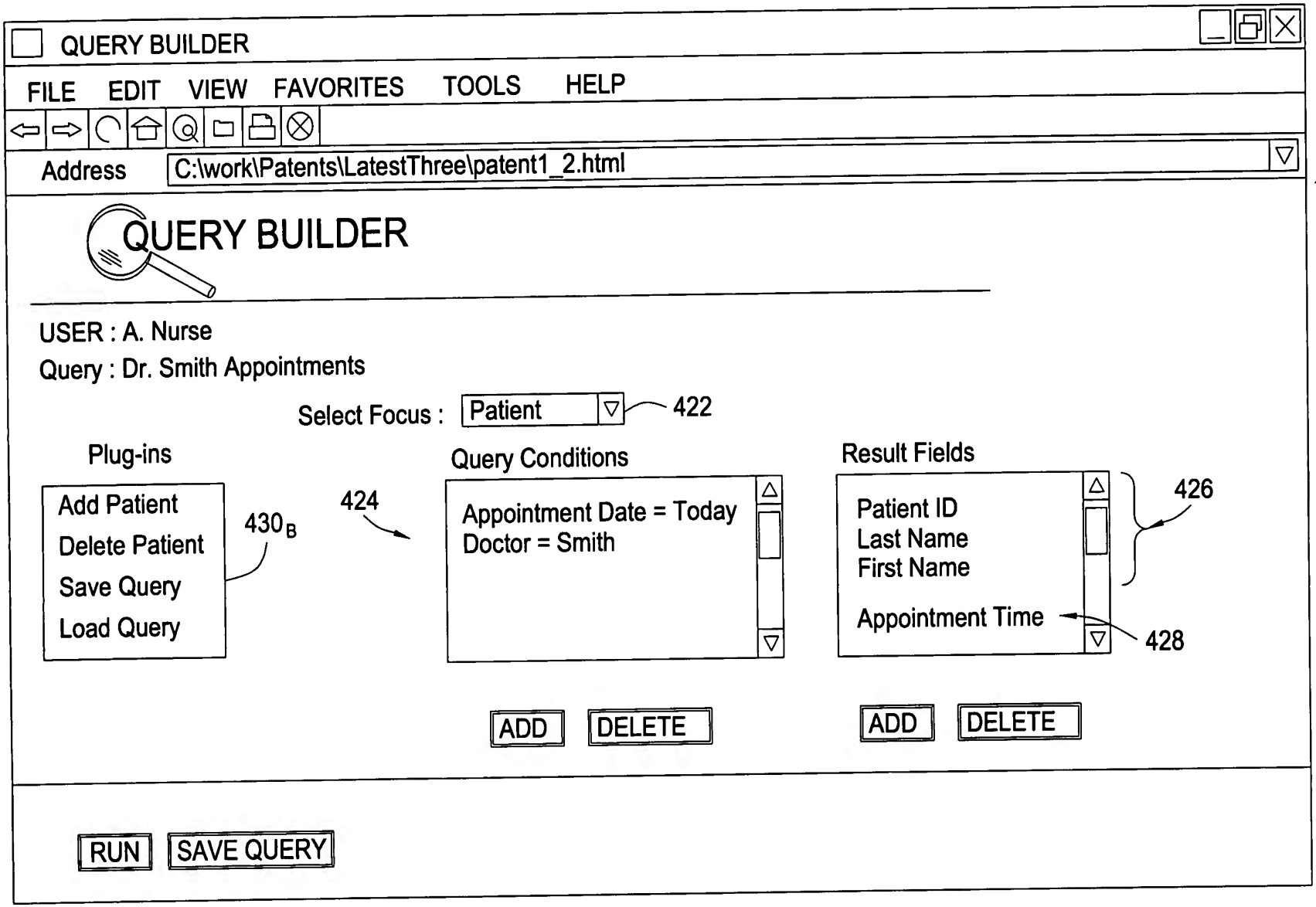
QUERY BUILDER
FILE EDIT VIEW FAVORITES TOOLS HELP
Address C:\work\Patents\LatestThree\patent1_2.html
420
QUERY BUILDER
USER : A. Nurse
Query : Dr. Smith Appointments
Select Focus : Patient
422
Plug-ins
Add Patient
Delete Patient
Save Query
Load Query
430B
424
Query Conditions
Appointment Date = Today
Doctor = Smith
Result Fields
Patient ID
Last Name
First Name
Appointment Time
426
428
ADD
DELETE
ADD
DELETE
RUN
SAVE QUERY

FIG. 4B

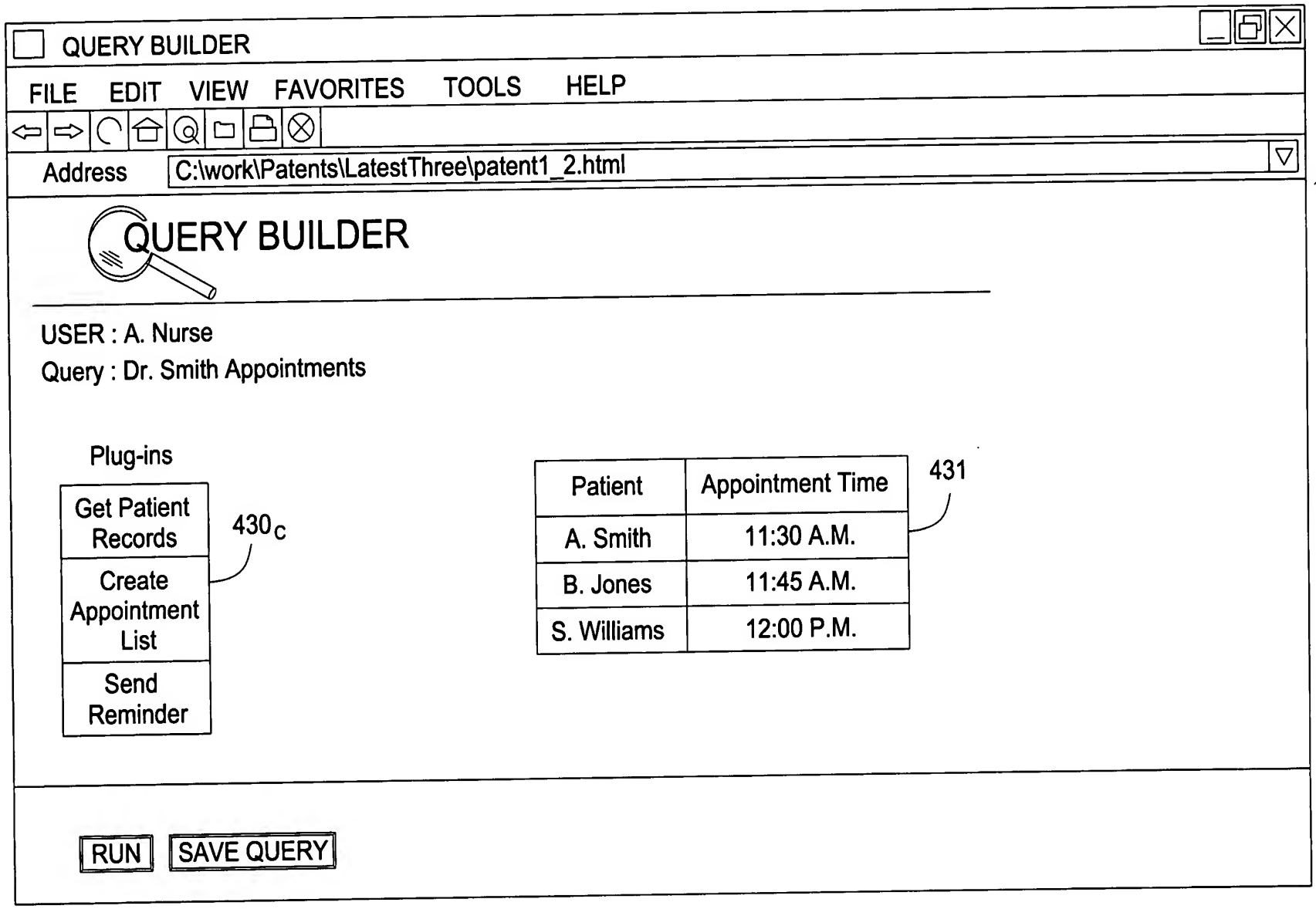
QUERY BUILDER
FILE EDIT VIEW FAVORITES TOOLS HELP
420
Address C:\work\Patents\LatestThree\patent1_2.html
QUERY BUILDER
USER : A. Nurse
Query : Dr. Smith Appointments
Plug-ins
Get Patient Records
Create Appointment List
Send Reminder
430c
Patient
Appointment Time
A. Smith
11:30 A.M.
B. Jones
11:45 A.M.
S. Williams
12:00 P.M.
431
RUN
SAVE QUERY

FIG. 4C

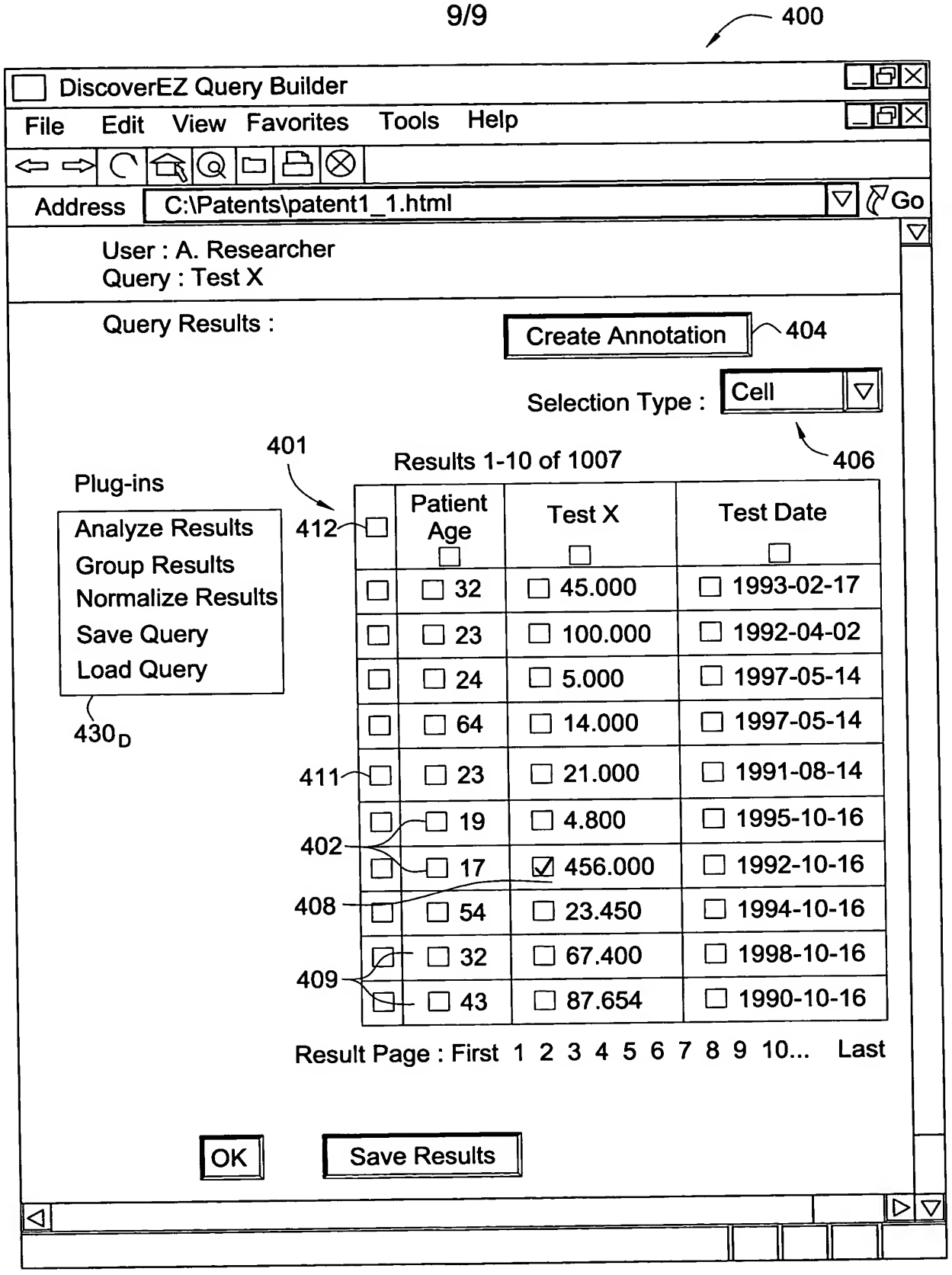
400
DiscoverEZ Query Builder
File Edit View Favorites Tools Help
Address C:\Patents\patent1_1.html
Go
User : A. Researcher
Query : Test X
Query Results :
Create Annotation
404
Selection Type :
Cell
406
401
Results 1-10 of 1007
Plug-ins
Analyze Results
Group Results
Normalize Results
Save Query
Load Query
430D
412
Patient Age
Test X
Test Date
32 45.000 1993-02-17
23 100.000 1992-04-02
24 5.000 1997-05-14
64 14.000 1997-05-14
411
23 21.000 1991-08-14
19 4.800 1995-10-16
402
17 456.000 1992-10-16
408
54 23.450 1994-10-16
32 67.400 1998-10-16
409
43 87.654 1990-10-16
Result Page : First 1 2 3 4 5 6 7 8 9 10... Last
OK
Save Results

FIG. 4D